

**NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET**

(Pursuant to NAC 445A.236)

Permittee: Homestretch Geothermal LLC
1147 N Daybreak Dr
Washington UT 84780

Permit No.: NEV92037

Facility: Wabuska Geothermal Power Plant
15 Julian Ln
(East of Hwy 95A, approximately 1.5 mi north of Wabuska)
Lyon County
Latitude: 39° 09' 40" N
Longitude: 119° 11' 00" W
T15N R25E S15SW¼ and S16SE¼

General: This geothermal power plant has been in operation since 1984. It operates in binary mode due to the relatively low (220°F) resource temperature, using isopentane as the working fluid. Discharge to natural pre-existing drainage channels began in 1996 after repeated attempts at re-injection failed, apparently due to the tightness of the aquifer formation. The ultimate destination for most of the discharge is a privately owned pond wetland west of Hwy 95A called West Basin. Power output is approximately 1.35 MW. For comparison, Sierra Pacific Power Co's nearby Fort Churchill power plant is rated at 220 MW.

Water exits the production units at 150 °F, and after flowing through a series of cooling ponds, exits the property at 120 °F. The discharge consists of spent geothermal water that has been used to heat isopentane in a non-contact heat exchanger. A portion of this water is further cooled in evaporative spray ponds for use as a coolant in the isopentane condensers. The adjacent property receiving the flow is privately owned, fenced, and posted with signs indicating the presence of hot water. The temperature apparently cools to ambient prior to reaching the highway and subsequently West Basin.

After receiving the current permit in 2003 the company obtained additional water rights and subsequently applied for a flow increase to accommodate production of additional electrical power. That modification is the subject of this fact sheet.

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Receiving Water Characteristics Averages of the last two annual sample results are as follows.

Avg of 2003 & 2004 Data				Water Quality Criteria ¹			
mg/l ²	Weir #1	Weir #2	West Basin	i	ii	iii	iv
Al	0.06	0.04	0.02				
As	0.05	0.05	0.07	0.05	0.18	0.1	0.2
Ba	nd	nd	0.03	2			
B	0.57	0.58	0.71			0.75	5
Ca	41	40.1	47.6				
Cu	0.03	nd	nd		0.012 ³		
Fe	0.12	nd	nd		1	5	
Mg	0.23	0.21	0.55				
Mn	nd	nd	nd			0.2	
K	16.2	16.3	19.0				
Na	284	284	315				
Cl	70.3	72.5	73.4	250		250	250
F	10.9	11.0	9.7			1	2
SO ₄	429	401	431	250			
pH	7.53	7.69	7.08	⁴	⁴	⁴	⁴
TDS	1119	1004	1172	500		500	500
H ⁵	103	101	121				

1. i = municipal & domestic supply, ii = aquatic life, iii = irrigation, iv = livestock watering

2. Except pH

3. Based on West Basin hardness

4. 6.5 - 9.5

5. Hardness as mg/l CaCO₃, based on Ca and Mg concentrations.

From the table, West Basin water quality appears to be generally slightly elevated but otherwise similar to the discharge. Constituents with concentrations in excess of water quality criteria are arsenic, copper, fluoride, sulfate and TDS. Arsenic is consistently in excess of the drinking water criteria. Copper was only detected in one of the last six samples, but at a level that would have exceeded the aquatic life criteria for West Basin, had it been detected there. Fluoride, sulfate, and TDS are consistently elevated,

Rational for Permit Requirements: Hot spring pools existed in this area prior to development of the power plant, so to a certain extent the discharge is perpetuating a previously existing flow. Based on this, and the quality of the

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discharge, treatment has not been required and concentration limits have not been imposed. The sampling frequency has been increased from annual to quarterly, based on the four fold flow increase that is the subject of this modification. Sampling of Outfall 001 is not included since both wells are now connected in a manifold arrangement. In summary, the permit accompanying this fact sheet requires weekly flow measurements and quarterly sampling for the above parameters at Outfall 002 and West Basin. Analytical results are simply reported, while flow is subject to an 8.0 MGD limit.

Changes from Previous Permit The permit accompanying this fact sheet is a modification to the previous permit that was issued 02/04/03, with the subject of the modification being an increase in the permitted flow from 1.9 MGD to 8.0 MGD. Along with that, the sampling frequency has been changed from annual to quarterly, and sampling for Outfall 001 has been eliminated. Other conditions remain unchanged.

Compliance History There is no record of permit violations in Division enforcement files.

Schedule of Compliance: The permittee is required to submit a design plan and installation schedule for a weir for Outfall 001, for flow measurement, by the six month anniversary of the effective date of the permit.

Well Head Protection Program This facility is not located within the 7000 ft buffer zone of any municipal supply wells.

Procedures for Public Comment: The Notice of the Division's intent to modify discharge permit NEV92037 authorizing discharge of 8.0 MGD of spent geothermal water to groundwater via ditches, ponds, and wetlands, subject to the conditions contained within the permit, is being sent to the **Reno Gazette Journal** and the **Mason Valley News** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of thirty (30) days following the date of publication of the public notice in the newspaper. The comment period can be extended at the discretion of the Administrator. The deadline by which all written comments are to be postmarked or hand delivered to the Division is 5:00 pm Friday January 27, 2006.

A public hearing on the proposed determination can be requested by the applicant, any affected state or interstate agency, the Regional Administrator, or any interested agency, person, or group of persons. The request must be filed within the comment period and indicate the interest of the person filing the request

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and the reasons why a hearing is warranted. Any public hearing the Administrator determines to be hold must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Proposed Determination: The Division has made the tentative determination to issue the proposed discharge permit for a five year term.

Prepared by: Robert J. Saunders
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Bureau of Water Pollution Control
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